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I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

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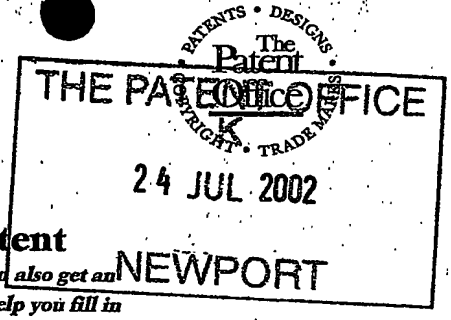
Signed Andrew Gersey

Dated 16 June 2003

Patents Form 1/77

Patents Act 1977
(Rule)



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P01/7700 0.00-0217142.9

1/77

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP10 8QQ

1. Your reference

2. Patent application number
(The Patent Office will fill in this part)
0217142.9

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*
Simon Sanders
35 Fowler's Road
Salisbury
Wiltshire SP1 2QP

Patents ADP number *(if you know it)*
8400624000 1

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention
Inner Liner

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*
~~as above~~
Baker Brettell
Medina Chambers
Town Quay
Southampton
SO14 2AQ

Patents ADP number *(if you know it)*
5177 12/6/01

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*
a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	
Description	3
Claim(s)	
Abstract	
Drawing(s)	4 + 1

10. If you are also filing any of the following, state how many against each item.

Priority documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	
Request for preliminary examination and search *(Patents Form 9/77)*	
Request for substantive examination *(Patents Form 10/77)*	
Any other documents *(please specify)*	

11. I/We request the grant of a patent on the basis of this application.

Signature [signature] Date 24 July 2002

12. Name and daytime telephone number of person to contact in the United Kingdom 01722 411255 / 07957 158584

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) *If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.*

b) *Write your answers in capital letters using black ink or you may type them.*

c) *If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.*

d) *If you have answered 'Yes' Patents Form 7/77 will need to be filed.*

e) *Once you have filled in the form you must remember to sign and date it.*

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Inner Liner

The invention relates to an inner liner for use in the installation of flexible liners within pipes in conjunction with a pipeline pig, which may protect the pipeline pig from contamination by resin or other material that may be present within the liner, may serve as a conduit and retainer for the pipeline pig.

A commonly used method for repairing pipes is by means of a flexible tubular liner. In the case of the repair of underground drain pipes, a liner (hereafter called a drain liner) is typically formed of a layer of fibrous material such as felt with, in many cases, a layer of impermeable membrane on the inner or outer surface, and with the fibrous material layer impregnated with a fluid material such as a resin which, after an interval or as the result of the application of a process such as heating, sets hard. One method for installing a drain liner is to position it within the pipe being lined and then to use a pipeline pig such as that described in patent application 0213388.2, to form it against the inside surface of the pipe being lined and to cause it to remain in position during the hardening process.

The invention provides for an inner liner consisting of a flexible tubular membrane that is inserted into the drain liner prior to the insertion of the drain liner into the pipe being lined. The circumference of the inner liner is similar to the inner circumference of the drain liner so that it may be spread out so that it is contiguous with the inner surface of the drain liner. The inner liner may be longer than the drain liner so that, following insertion into the liner, it protrudes beyond one or both ends of the drain liner.

The inner liner serves primarily to protect the pipeline pig from contamination by material such as resin impregnate and also may serve as a conduit for the pipeline pig if it is desired to install a drain liner in a position such that one or both ends of the drain liner is located within the pipe being lined at a distance from the point or points of access to the pipe being lined. The inner liner may be made of a material that is resistant to adhesion to or contamination by the materials used in the lining process such as the resin used for impregnation.

In one embodiment of the invention, following the insertion of the inner liner into the drain liner and prior to the positioning of the drain liner in the pipe being lined, a pipeline pig is inserted into one end of the inner liner and is caused to move through the inner liner by a method as described in patent application 0213388.2. This causes the inner liner to be spread within the drain liner so that it is contiguous with the inner surface of the drain liner.

The drain liner and the inner liner that is contained within the drain liner are inserted into the pipe being lined and are spread and pressed and held against the inner surface of the pipe being lined by a method as described in patent application 0213388.2, including the introduction of a pressurising medium such as a gas or a fluid or a combination of gas and fluid into the void within the inner liner through which the pipeline pig has passed. If the inner liner has not already been spread within the drain

liner by the method described above so that it is contiguous with the inner surface of the drain liner, it is so spread within the drain liner by this process.

The inner liner may be closed at one end with an aperture through which air or a pressurising medium such as a gas or a fluid or a combination of gas and fluid may escape. The aperture may be fitted with a pressure control valve so that the pressure at which the air or pressurising medium is caused to escape is controlled. The closed end serves as a receiving chamber for the pipeline pig, preventing further movement of the pipeline pig following its passage through the combined drain liner and inner liner. The aperture serves to release air pressure or pressure in the pressurising medium that builds up as a result of the passage of the pipeline pig through the combined drain liner and inner liner.

Following the installation of a drain liner using the inner liner method, the inner liner may be removed, typically by cutting it out or peeling it away from the inner surface of the drain liner.

The invention will now be described in detail with reference to the accompanying drawings in which:

Figure 1 shows in general view a section of drain liner with a section of inner liner being spread using a pipeline pig

Figure 2 shows in cross-sectional view a section of a drain liner within a pipe being lined and the closed end of the inner liner

In the drawings, the following reference numbers refer to features of the invention as follows:

1. An inner liner
2. A drain liner
3. A pipeline pig
4. The direction in which the pipeline pig 3 is moving
5. The part of the inner liner 1 through which the pipeline pig 3 is passing or has passed
6. The part of the inner liner 1 through which the pipeline pig 3 has not yet passed
7. A pipe being lined
8. The end-chamber formed by the closed end of the inner liner 1
9. The aperture in the closed end of the inner liner 1

As shown in Figure 1, an inner liner 1 is positioned within a drain liner 2. A pipeline pig 3 is passed through the inner liner 1 in the direction 4. The part 5 of the inner liner through which the pipeline pig 3 is passing or has passed is spread so that it is contiguous with the inner surface of the drain liner. The part 6 of the inner liner through which the pipeline pig has not yet passed remains in the unordered state that it formed when inserted into the drain liner 2.

Figure 2 shows in longitudinal cross-section the end of an inner liner 1 within a drain liner 2 which is positioned within a pipe being lined 7. A pipeline pig 3 is positioned within the inner liner 1 and is moved in the direction 4 shown by means not shown in this figure 2. The end of the inner liner 1 is closed, forming an end-chamber 8 into which the pipeline pig may pass and be held. An aperture 9 serves to release air or pressurising medium such as a gas or a fluid or a combination of gas and fluid that may be in the end-chamber 9. The aperture 10 may be fitted with a pressure control valve.

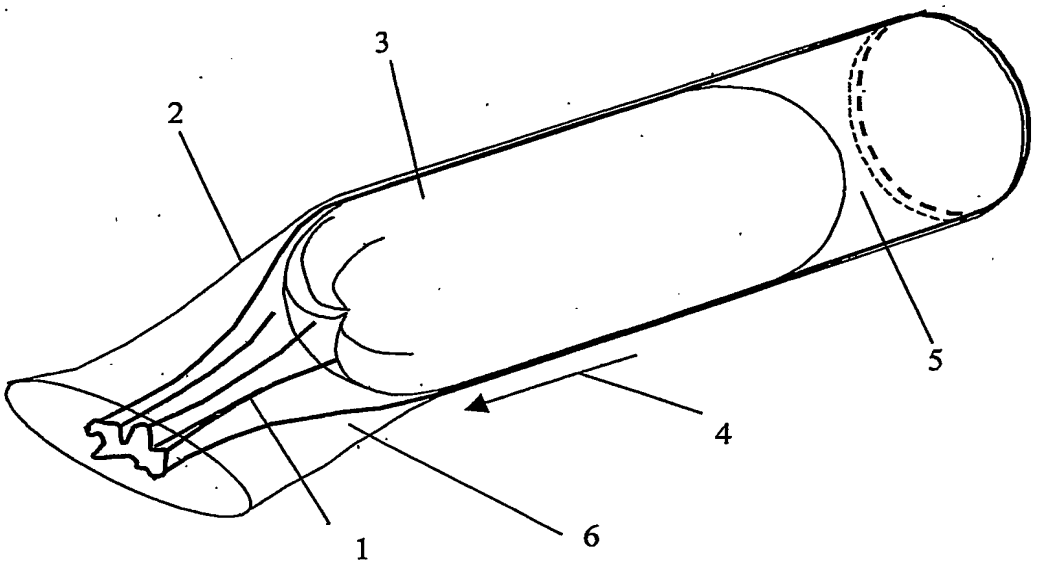

Figure 1

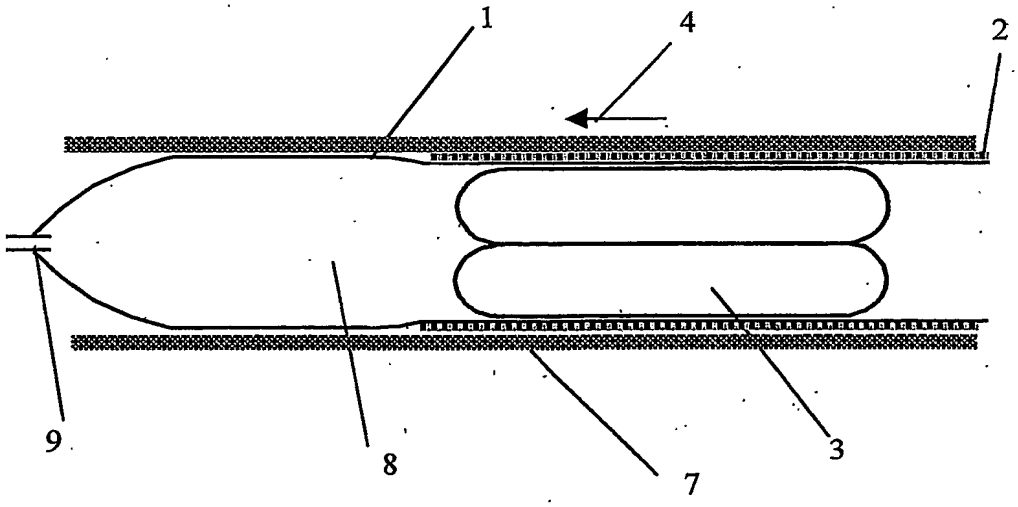

Figure 2